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Education

Ph.D., Soil Science (Soil Physics), 2007, North Dakota State University, USA

M.S., Soil Science (Soil Physics), 2003, North Dakota State University, USA

B.S., Soil and Water Conservation, 1998, Beijing Forestry University, China

Research and Professional Experience

April 2012 – Present: Assistant Biogeochemical Modeler, *Argonne National Laboratory*

March 2013 – Present: Fellow, Computation Institute, *University of Chicago*

January 2011 – March 2012: Postdoctoral Research Associate, *University of Alaska, Fairbanks*

July 2007 – January 2011: Research Associate, *University of Colorado, Boulder*

March 2007 – July 2007: Research Associate, *University of Arizona, Tucson*

June 2002 – March 2007: Graduate Research Assistant, *North Dakota State University*

July 1998 – June 2002: Research Associate, *Shijiazhuang Institute of Agricultural Modernization, Chinese Academy of Sciences*

Refereed Publications

1. **Z. Fan** and C. Liang. 2015. Significance of microbial asynchronous anabolism to soil carbon dynamics. *Sci. Rep.*, 5: 9575, doi: 10.1038/srep09575
2. **Z. Fan**, J.C. Neff, and N.P. Hanan. 2015. Modeling pulsed soil respiration in an African savanna ecosystem. *Agric. Forest Meteorol.*, 95, 225-238
3. X. Bai, S.L. Shrestha, F.X.M. Casey, H. Hakk, and **Z. Fan**. 2014. Modeling coupled sorption and transformation of 17 β -estradiol-17-sulfate in soil-water systems. *J. Contam. Hydrol.*, 168, 17-24
4. **Z. Fan**, J.C. Neff, M.P. Waldrop, A.P. Ballantyne, and M.R. Turetsky. 2014. Transport of oxygen in soil pore-water systems: implications for modeling emissions of carbon dioxide and methane from peatlands. *Biogeochemistry*, 121, 455-470
5. Y. He, Q. Zhuang, J.W. Harden, A.D. McGuire, **Z. Fan**, Y. Liu, and K.P. Wickland. 2014. The implications of microbial and substrate limitation for the fates of carbon in different organic soil horizon types of boreal forest ecosystems: a mechanistically based model analysis. *Biogeosciences*, 11, 4477-4491
6. **Z. Fan**, J.D. Jastrow, C. Liang, R. Matamala, and R.M. Miller. 2013. Priming effects in boreal black spruce forest soils: quantitative evaluation and sensitivity analysis. *PLoS ONE*, 8(10): e77880, doi: 10.1371/journal.pone.0077880
7. U. Mishra, J.D. Jastrow, R. Matamala, G. Hugelius, C.D. Koven, J.W. Harden, C.L. Ping, G.J. Michaelson, **Z. Fan**, R.M. Miller, A.D. McGuire, C. Tarnocai, P. Kuhry, W.J. Riley, K. Schaefer, E.A.G. Schuur, M.T. Jorgenson, and L.D. Hinzman. 2013. Empirical estimates to reduce modeling uncertainties of soil organic carbon in permafrost regions: a review of recent progress and remaining challenges. *Environ. Res. Lett.*, 8, 035020, doi: 10.1088/1748-9326/8/3/035020
8. **Z. Fan**, A.D. McGuire, M.R. Turetsky, J.W. Harden, J.M. Waddington, and E.S. Kane. 2013. The response of soil organic carbon of a rich fen peatland in interior Alaska to projected climate change. *Global Change Biol.*, 19, 604-620
9. J.W. Harden, K.L. Maines, J. O'Donnell, K. Johnson, S. Frolking, and **Z. Fan**. 2012. Spatiotemporal analysis of black spruce forest soils and implications for the fate of *C. J. Geophys. Res.*, 117, G01012, doi: 10.1029/2011JG001826

10. Z. Wen, W. Ma, W. Feng, Y. Deng, D. Wang, **Z. Fan**, and C. Zhou. 2012. Experimental study on unfrozen water content and soil matric potential of Qinghai-Tibetan silty clay. *Environ. Earth Sci.*, 66, 1467-1476
11. **Z. Fan**, J.C. Neff, J.W. Harden, T. Zhang, H. Veldhuis, C. I. Czimczik, G.C. Winston, and J. O'Donnell. 2011. Water and heat transport in boreal soils: implications for soil response to climate change. *Sci. Total Environ.*, 409, 1836-1842
12. **Z. Fan**, F.X.M. Casey, H. Hakk, G.L. Larsen, and E. Khan. 2011. Sorption, fate, and mobility of sulfonamides in soils. *Water Air & Soil Pollut.*, 218, 49-61
13. **Z. Fan**, J.C. Neff, and K.P. Wickland. 2010. Modeling the production, decomposition, and transport of dissolved organic carbon in boreal soils. *Soil Sci.*, 175, 223-232
14. H. Hakk, F.X.M. Casey, **Z. Fan**, and G.L. Larsen. 2009. A review of the fate of manure-borne, land-applied hormones. In *Veterinary Pharmaceuticals in the Environment* (K.L. Henderson and J.R. Coats, eds.), doi: 10.1021/bk-2009-1018.ch003
15. **Z. Fan**, J.C. Neff, J.W. Harden, and K.P. Wickland. 2008. Boreal soil carbon dynamics under a changing climate: A model inversion approach. *J. Geophys. Res. – Biogeochemistry*, 113, G04016, doi: 10.1029/2008JG000723
16. **Z. Fan**, F.X.M. Casey, H. Hakk, and G.L. Larsen. 2008. Modeling coupled degradation, sorption, and transport of 17β -estradiol in undisturbed soil. *Water Resour. Res.*, 44, W08424, doi: 10.1029/2007WR006407
17. **Z. Fan**, F.X.M. Casey, H. Hakk, and G.L. Larsen. 2007. Persistence and fate of 17β -estradiol and testosterone in agricultural soils. *Chemosphere*, 67:886-895
18. **Z. Fan**, F.X.M. Casey, H. Hakk, and G.L. Larsen. 2007. Discerning and modeling the fate and transport of testosterone in undisturbed soil. *J. Environ. Qual.*, 36:864-873
19. **Z. Fan** and F.X.M. Casey. 2007. Estimating solute transport parameters using stochastic ranking evolutionary strategy. *Vadose Zone J.*, 7:124-130
20. **Z. Fan**, F.X.M. Casey, G.L. Larsen, and H. Hakk. 2006. Fate and transport of 1278-TCDD, 1378-TCDD, and 1478-TCDD in soil. *Sci. Total Environ.*, 371:323-333